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ABSTRACT

A proposal for cooperation in multimedia projects among European countries is advanced in a study sponsored by the Council of Europe. Projects that are now operating, such as the British Open University, are analyzed and the possibilities of extending them to other parts of Europe are assessed. Multimedia "first education", a cooperative middle-school curriculum, parent-education projects and methods of vocational guidance are also analyzed. A suggestion is made for a pilot project of about 20 broadcasts. (SK)

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PROBLEMS AND PERSPECTIVES IN EUROPEAN MULTI-MEDIA SYSTEMS DEVELOPMENT

Study
by
Professor H van PRAAG

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Acknowledgements

I have tried in this monograph to indicate ways and means of arriving at European co-operation in the field of multi-media education.

I am grateful for the use of earlier documents published by the Council of Europe, such as "Media Based Instructional Systems" and "Vers une Europe de l'éducation".
I found the preliminary studies of Messrs Hubbard, Deprad and Garnier extremely useful, and also L A Gilbert's study on "A European information system for non-book materials" (1).

Naturally, I have also been guided by the experience I have gained in my everyday work as Senior Lecturer at the Television Academy and from my many contacts with colleagues abroad (2).

This paper is intended in the first place as a summary of some of the practical possibilities which are capable of being put into operation in the short term. I have kept in mind two old Chinese sayings: "A thousand miles starts beneath your feet today", and "It doesn't matter how fast you go forward, as long as you go forward".

H van Praag

I. Thesis

Why co-operation?

Those who advocate co-operation in the field of multi-media education may do this for a variety of reasons, which are mainly based on educational principles or the theory of teaching techniques (3).

In an age of accelerated information turnover, fast-moving traffic and telecommunications it is an obvious step for education to be co-ordinated too. Every right-minded educational theorist sets his heart on consistent education all over the world. But you can also imagine that particularly those who are working in new educational technology need to try these methods out on a larger scale.

Both aspects are perfectly legitimate and need little elucidation. They have the best chance of succeeding if they reinforce each other. It is logical that every project which unites the objectives of educational principles and teaching techniques can count on increased sympathy and support (4).

In this study therefore we have been looking for projects which are of interest from a material and a formal point of view, that is as far as both content and educational technology are concerned. The necessity for co-operation is obvious and has been convincingly defended so often (eg "Vers une Europe de l'éducation") that it is even difficult to think of any counter arguments. Of the many advantages we emphasise the following four:

a. the avoidance of duplicating work and effort;

b. benefiting from one another's experience;

c. improvement of aids and methods;

d. saving production costs.

How do we make our choice?

Goethe's words are highly appropriate in this context: "In der Beschränkung zeigt sich erst der Meister". (It is in self-limitation that a master first shows himself). There are such an enormous number of pedagogic and didactic experiments in Europe that an enquirer after synthesis is spoilt for choice.

It is tempting to associate oneself with co-ordination attempts which have already been undertaken with success (5). But who is going to guarantee that all the other countries and their official institutions will switch over to a particular system without more ado? Because of the acceleration factor (Haléry), by the time we have countered all the opposition to supranational distribution any given course or material will be out of date (6).

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Arguing from the basic idea of the "systems approach"(7), it makes more sense if agreement is first reached on the kinds and forms of education to include in our co-ordination plans, and only then should it be ascertained what existing multi-media (or single-medium) material may be used or adapted to our purpose.

Since this concerns a fundamental point of procedure we should fully justify this choice. We are aware however that this preference contains an imponderable element which we cannot completely rationalise (8). We support our choice by the following considerations:

a. Decisions such as those being discussed here require the assent of a large number of decision makers. Anyone who has experience in the field of European cultural co-operation knows how important decisions are blocked at institutional and regional level before they reach the stage of national decisions (9). Because of this, even bilateral arrangements sometimes require years of preparation. It is advisable therefore to come with the kind of proposals which encounter as little opposition or routine delay as possible. The more open, non-committal and original a proposal is, the greater its chance of being promptly settled (10).

b. Research in the management and decision-making field indicates that an end is achieved more quickly by getting rid of dysfunctioning (11). Experienced political negotiators (such as Henry Kissinger) first of all make a list of the bottlenecks in a process and try to eliminate them. In looking for suitable topics for multi-media co-operation one should give preference to those which entail the least dysfunctioning. Generally speaking new projects have fewer than old ones, mainly because adaptation to new requirements often meets with opposition from the people who originally produced the projects (12).

c. By choosing new projects one may often begin at a higher decision level, which makes the choice of enthusiastic staff easier too. People know they are supported by those above them.

d. By looking for a combination of pedagogic (content) and didactic (technology) requirements, one can count on the support of at least two camps, which in a sense operate as pressure groups and this in most cases increases the co-operative spirit of the decision makers (13).

e. If one can agree on a number of multi-national and multi-media projects, one may wonder which existing projects can be used. If one succeeds in assigning a co-ordinating function to certain countries or institutions, the national or institutional effort has the effect of creating a sense of involvement. One can imagine that in establishing a multi-media university, and setting up a European school at secondary level, the Open University and the German Telekolleg respectively may make substantial contributions.

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Were one to begin, on the other hand, with the existing Open University and expand its operation on an international basis it might be years before a consensus is reached. The decision that there must be a European multi media university has to be made first; in that way everything remains open to discussion. Afterwards an international working committee can be appointed which may or may not make recommendations to use the British project entirely or partly as a base. The sequence of the procedures is of decisive importance here (14).

II. Choice

What multi media projects are to be considered?

If we want to make proposals for co-operation within Europe then we can recommend the following projects:

a. a multi-media project for first schools for an explanation of this term see under III "What is first education?" (basisonderwijs)

b. an open comprehensive school

c. an open university

d. co-ordination of post-graduate courses

e. a school for parents

f. multi media professional courses.

It is undoubtedly possible to undertake many other projects. It seems to us however that the ones we have referred to are the most urgent, and partly because of that they have the best chance of succeeding (15).

We shall try to elaborate on this for each proposal.

Multi media project for first schools

If we restrict ourselves to the countries which are represented in the Council of Europe, then we can say that all those on the inside would welcome greater uniformity in first education. In the light of European federalism, co ordination of education is a step in the right direction. We would emphasise that we would not want to see this co ordination as an exclusively European activity and we would welcome wholeheartedly as a partner any country expressing interest especially if this were to be part of development aid. Since, however, the Council of Europe is an instrument whereby we can promote supranational projects in a more limited context, it would be folly not to take advantage of it.

We ought to point out that greater uniformity is not synonomous with equalisation (16). Local, regional and national differences in education may give it its local, regional or national flavour. Education should not degenerate into an "Eintopfsgericht" one course meal though a high degree of uniformity is extremely desirable. A case in point is the unit/credit system for language teaching, which the Council of Europe has in fact done much to promote (17).

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It would be an enormous advantage for first schools if pupils could transfer without difficulty from a school in Stockholm to one in Bern or Madrid (18). The newest pedagogic and didactic ideas would become common property. We mention only a few points which have found general recognition in educational circles nowadays, but of which there is unfortunately little to be seen as yet in practice in the schools.

a. co-ordination of nursery education (learn/play school) and primary education into first education

b. vertical flow education without repeat years

c. a flexible school which adapts itself to the learning pace of individual pupils and which works towards determination rather than selection (vertical integration)

d. self activity and heuristic pursuits

e. combination of general and technical education

f. expansion of the traditional school into a multi-media teaching institute.

But it is obvious that letting the existing schools grow towards each other is no simple matter. How is the contact between a school in Helsingfus and a school in Rome to come about? Sometimes local and national inspectorates will even try to slow down the process.

If we were to succeed in giving priority to (f), however, it would be a completely different matter. Supposing there was no compulsory education, or that the majority of children were taught at home, then a multi-media first school could be extremely useful. Fortunately this is not the case, however, and there is considerably less need for an "open first school" than for an "open university". Nevertheless there are schools which approximate to this, for example the Italian Telescuola, the Spanish Telescuela, correspondence courses in Sweden for people of school age and to some extent television for schools in West Germany, the Netherlands and Belgium etc.

First education for adults has also been provided in Italy to overcome illiteracy - "non è mai troppo tardi" (19). It appears therefore that the multi media first school is not entirely a fiction but only operates here and there. Taking into account compulsory education and the low incidence of illiteracy in Europe the multi-media first school would only be a practical proposition if it integrated the existing schools, and there is absolutely no question of this for the time being.

On the other hand television, radio etc could play an important rôle in renewing and co-ordinating primary education. This could be done in three ways:

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1. by training and retraining teachers at European level

2. by co operation between radio and television for schools which already exists in various countries

3. by creating an experimental progressive school which could be used as an example in educational renewal.

An open comprehensive school

The arrival of a type of secondary school in which general and technical education will be united is considered by very many pedagogues and educational specialists as an inevitable development. This form of education crops up in different places under various names, comprehensive school, Gesamtschule, middenschool etc (20).

What we wrote about first schools applies mutatis mutandis too to secondary schools. Occasional attempts have been made in this sphere to introduce the multi media into secondary education and up to now the Telekolleg has had the most satisfactory results. People are preparing courses of this kind in many countries. There are three categories here too which come under consideration as far as co-ordinatio is concerned:

1. teachers

2. television and radio for schools

3. experimenters in educational renewal.

As opposed to primary education, where only a few adults would be able to benefit from multi media teaching (eg those who are illiterate or semi-literate, or foreign workers) there are a great number of adults who never went any further than the primary level at school. Moreover, there are various kinds of secondary education and it is often the case that the secondary education received at school is not adequate for admission to higher education or training courses for professional jobs in trade and industry, government service etc. A Dutch sociologist has thought up the expressive term "fuik syndrome" ("trap syndrome") to describe the position of employees who cannot go any further because their educational foundation is too narrow. They feel like fish caught in a net.

The Television Academy has been preparing courses over a long period of time with a view to widening this foundation (basis extension). The final argument for this kind of education is the fact that information is rapidly increasing and/or becoming obsolete (21). Someone who left school 20 years ago or more knows nothing of modern mathematics and has never been in a language laboratory, etc.

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The Telekolleg experiment is based on considerations of this kind. About 80% of the population in Bavaria was found to have had no general education after primary school. The presence of a large group of interested adults makes the chance of a European multi-media experiment succeeding considerably greater, and the experiences of the Bayerischer Rundfunk and perhaps those of Télébac (with a more specific purpose) will definitely be beneficial (22).

An open university

The title of this paragraph is a salute to our British colleagues, who with a great deal of exertion and much financial sacrifice have succeeded in giving a multi-media institution for tertiary education a distinctive character. No criticism or self criticism can detract from the prestigiousness of the achievement. Terms like Telescuola, Telekolleg and Open University will without doubt later come to be key concepts in relation to primary, secondary and tertiary multi-media education.

Innumerable specialists have advocated co-ordination of university education in the last ten years. Institutes like NUFFIC (23) have also persistently advocated co-operation with universities outside Europe. The word "university" implies universal education and it can hardly be confined to the frontiers of our part of the world. But obviously in this paper the emphasis has been laid on European co operation.

The urgent necessity for European co-operation goes almost without saying. Even within countries, university syllabuses are not co ordinated. If we are striving for a United Europe between 1980 and 1990 then we should try to bring our certificates more into line and not just our currencies. This is only possible if we give the Baukasten-systeem (24) a fair chance.

It is a mistake to think however that our universities and "hogescholen"(x) are the only tertiary education institutuions eligible for co-ordination. It is precisely in the last few years that tertiary education outside the universities has become established everywhere in academies, colleges, teacher training institutes, business management institutes, higher professional training courses, information science courses etc (25). We shall have to give thought to all these aspects of tertiary education. As in the case of the open school, the open university will have a greater chance of succeeding if it has in mind a specific group which it hopes to reach. Of the many slogans from Jennie Lee's and Harold Wilson's renowned (almost classic) White Paper the offer of second chance education remains the one that sticks. A project of this kind does much to encourage social mobility, which a democratic Europe ought to regard as a sine qua non (26).

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(x) Institution at university level without the requisite number of faculties to be called a university.

Co-ordination of post-graduate education

Anyone who took an engineering degree before the second world war was more or less set up for his whole career. He had "finished" his studies and could manage with his knowledge and skill for about 35 years as long as he kept in touch occasionally with new developments and carefully kept up with professional literature. Terms such as "terminal age for education" belong to the distant past. Marshal MacLuhan, enfant terrible of audiovisual instruction was right when he said we should have to earn our living by learning (28).

These days an engineer can manage with his technical background for ten years at the most but in the meantime he has to continually keep learning and unlearning (29). Certain branches of science like biochemistry, nuclear physics and computer science (not to mention space travel) become obsolete very much more quickly. Programmers sometimes have to re-sit examinations every year (or even every half year) to show that they have kept up.

The American/Hungarian mathematician Kemency once said: "If Newton had been able to return to earth a hundred years after his death he would easily have been able to understand all the books on mathematics, mechanics, physics and astronomy published since then. But if I fail to keep up with my professional literature for three months I am completely disoriented".

Halévy, the French sociologist, has introduced the term "accélération" to indicate the rapid growth of information and techniques. According to him our knowledge doubles in about ten years, while in the past it took two thousand years to double. Of course this kind of figure is only an extremely rough estimate, and cannot be stated with true precision. One wonders whether this acceleration can continue in a geometrical progression. There are clearly sig s that we may be entering a period of stagnation. Progress in physics, for instance, is not sufficiently supported by mathematical insights. Our physicists are succeeding less and less in putting their discoveries into a manageable mathematic code, as they were able to do in the case of the theory of relativity. One should realise for example that the logic of our computers is the electronic translation of symbolic logic, which was developed by Boole and De Morgan a century before. And space travel - no matter how spectacular - is based to a large extent on the classic mechanics of Newton. Co-operation between the disciplines on the grounds of these decelerating factors specified above is also desirable.

But if our knowledge augments now according to a geometrical or arithmetical progression, the storage, processing and communication of new information will be extremely difficult. We shall return to this later.

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It follows from this development that graduates from our tertiary education institutions must regularly or systematically receive refresher training or re-training. Post-graduate courses for doctors are given in many countries. In America closed circuit television is often used in large hospitals (30), in Europe (Scotland, France, West Germany, the Netherlands etc) the medium of television (and demonstration films) is generally used. It is logical that post-graduate education for teachers, engineers, architects, chemists, etc is equally desirable. European co-ordination (possibly in co-operation with international concerns, research institutes and laboratories) will in the long run be seen as the only way. Considering the achievements in the field of teaching techniques of the Paris Institute for "Arts et Métiers"(Arts and Crafts) an organisational role for France is very much on the cards.

A school for parents

The ironic saying that parenthood is the most difficult profession of all, while practically nobody is trained for it, has become a bitter truth in our time. This is linked with the fact that the generation gap is now much wider than it was in the past, especially because of the acceleration of social change. In the first place this is linked with the fact that we are now confronted with three brands of generation gap:

1. the normal antithesis between the old and young generation, between those on their way in and those on their way out;

2. the contrast between a generation who lived through the war and the post war generation

3. alienation between a generation who grew up in an old-fashioned world and a generation which from its earliest youth has grown up with modern technology.

Obviously the older generation under (2) (above forty) and (3) (above sixty) will gradually retire from the field. The generation problem will then become simpler again, that is to say it could become simpler. At first glance it does indeed appear to be a very simple matter. Soon there will only be young people and older people left who all belong to the same modern way of life, and the gap will narrow somewhat. Unfortunately nothing is further from the truth.

The modern technological world is a proposition, not a known quantity; a worry, not a windfall; extremely heterogeneous, not homogeneous.

The contrast of old-fashioned and modern may disappear, but its place will be taken by a much sharper antithesis - that between up to date and out of date. An older generation which is no longer up to date will also lose all authority over youth, who will dismiss them as being passé.

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Initially the gulf between up to and out of date in a technological world seems shallower than that between "modern" and "old-fashioned". But it is only appearance. In fact an old-fashioned person is the bearer of a distinctive culture which is turned inward upon itself. His descendant might smile at him, but he envies him too somehow. David Riesman, the American sociologist, makes a distinction between the "inner directed generation" and the "outer-directed generation" that is between the generation which is attached inwardly to its own culture and a generation which gets its instructions from outside.

People of former generations, even the slaves who helped to build the pyramids, were inwardly much more bound up with their culture, because this attachment was based on a century long process. They were as at home in their culture as a fish in water, no matter how uncomfortable that environment might be. This can be clarified by a simple illustration.

If someone walks from A to B, he can quietly observe his surroundings. If he travels the same distance by car, then he registers very much less of his environment even if he were to drive there and back a dozen times.

Mankind is born to discover the world at a rate of four or five kilometres per hour, and his senses are attuned to it. Through modern means of transport his rate of movement has multiplied many times (soon we will be able to fly from Amsterdam to New York in an hour and a half) but his sensory organs still work at the same speed. The same incongruity holds between head and heart. Our brain capacity is much larger than that of Neanderthal man, but our hearts have not kept up with our rapid thinking. Our brains are always on the move, our hearts are an archaism that cannot make the pace and therefore often lag panting behind.

If we continue to move about at an increasingly faster pace we will have to learn to adapt our capacity for observation accordingly. This is what is so important about information theory. But for the time being we can only say that the old fashioned and pre war generation have individual experiences which make them a partner in the debate, while the out of date moderns can only make a negative contribution.

The same painful problem for that matter crops up in the backward areas which we euphemistically call "undeveloped" or "developing" countries. They count a lot less than the primitive communities that can still boast of an individual cultural heritage. We should therefore be careful with technical development programmes which completely destroy indigenous civilizations.

In the dialogue between the generations the modesty of all the parties is the first requirement. Recollection of the pre-technical era is of great importance in not letting the continuity of history fall by the wayside. These problems crop up in a condensed form in the confrontation of two successive generations, that is between parents and children. Guidance is undoubtedly necessary in this instance.

France has done pioneer work with its "école pour parents". We also quote the activities of Schwarz in Nancy which have produced the Cucès-project (31). But the BBC, Bayerischer Rundfunk,

The ZDF(Zweites Deutsches Fernsehen), Denmark and the Netherlands have broken new ground in this field. It is therefore no easy matter to make a suggestion as regards the central task of co-ordination.

Multi-media professional courses

All institutes concerned with educational television have also been offering refresher courses in the past few years as a contribution to vocational guidance. The report of the Council of Europe on the subject can be quoted and fully endorsed (32). It is certainly possible to work together in this area supranationally, as is done already in certain instances (eg between the Television Academy and BRT (Belgische Radio en Televisie)), but this requires continual ad hoc decisions being made. The Council of Europe cannot really go any further than to encourage this kind of co-ordination, but it will often be difficult to plan in the long term at international level in view of the rapid changes in science and technology and the widely different national and regional needs.

III. The flexible school

What is first education?

It is said of Wayland Parker, the educational theorist from Chicago, that when a mother asked him: "When should I start educating my child?", he replied, "When are you expecting it?"

"Expecting?" she stammered, "He's five."

"My God! woman!" screamed Parker, "Don't stand talking to me, get home as fast as you can, you've let the best five years go." (33).

This leaves us in no doubt that education starts immediately after a child is born (34). Hans Zulliger, the Swiss psychiatrist, even talks about prenatal education. It is precisely in an age of permanent education that the planning and programming of upbringing and education should be seen as a whole. That is the main reason why we have included first education in this study.

What do we mean at the moment, in 1974, when we talk about first education? There are still a number of different ideas about it. There are educational theorists who want to draw the upper limit of the primary school at ten years, the start of the adolescent phase. Even Rousseau tellingly called the ten year old the "enfant fort". Others want to draw the line at eleven or twelve years. There is the same problem with the lower age level. But all specialists agree that the barrier between the toddler and the primary school child is artificial. Montessori had already pointed out that the sensitive period for learning to read and write for most children was when they were four. (Attempts to shift the learning to read stages back to babes in arms, as Denman, an American, proposes, are unsound in terms of child psychology (35).) It is therefore advisable for the intellectual education to start even if it is through play - in the "kindergarten" (as Fröbel, with deep insight, called the nursery school). Whether this should be laid down in the compulsory school attendance legislation is another matter and is outside the scope of this study (36).

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Associated with the idea that children should start school earlier is the realisation that the lesson material has to be presented in a different way. Physical orientation and learning to work with sets and relative terms should come before reading, writing and arithmetic.

The theory of teaching technique is really a method of learning to handle frames of reference (orientation systems). These occur at various levels: concrete, schematic, abstract and technical (applied).

We think of a frame of refernce as a timetable of co ordinates in which our experiences may be placed. The use of frames of reference distinguishes man fundamentally from an animal which is capable of a simple use of symbols but cannot relate symbols to each other. The study of frames of reference now forms a substantial part of development psychology and the general theory of teaching techniques.

Every orientation system has a core where the co-ordinates (axes, dimensions) meet. In abstract systems this core is generally termed O or origin. The primary orientation system is however the physical world of experience, at the centre of which concrete man finds himself. We call this the O-system or basic system.

In the past hundred years numerous researchers (Riemann, Enriques, Köhler, Stern, Kohnstamm, Palagyi) have pointed out that even the most abstract thinking has developed from our motor sensory orientation. It is amazing therefore that the theory of teaching methods has paid so littl attention to the total development of the physical make-up. (Montessori has special sensory organ exercises, Dalcroze rhythmic movement etc but a complete physical orientation methodology is lacking. This can undoubtedly also be explained by the fact that physical exercise has been a separate subject at school since time immemorial, but has never been seen as a preparation for reading, writing and arithmetic.)

It was only through the development of the theory of relations in mathematics (ensuing from the logic of relations) that people came to realise that the fundamental relationships, which crop up in spoken language and in mathematics, have their basis in the relationship of the sensory and motor functions. Some pupils cannot fulfil a simple comma like: write a 3 after a 2, because they do not know what is meant by "after". They think it does not matter where they put it as long as they write it "afterwards". The "after" concept has first to be developed in the individual body. Dyslexia, difficulty with figures, etc are being put down by more and more pedotherapeutists to primary defects of the system. It is by no means contended that all reading, writing and figure disorders can be explained by this, but in many cases word blindness or difficulties in relating in arithmetic is based on a defective physical system.

It has been found that curing orientation defects has a favourable effect on all progress at school. This is especially true of mentally defective children or children whose motor functions are disturbed.

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Both man and animals have an extremely efficient information processing system in their sensory/motor apparatus. Our sensory organs transmit information from the outside world to our central nervous system, which gives commands to our muscles and other organs. As Zuckerman said: "Variety in stimulation is the bread, not simply the spice, of life " (37).

Orientation education should precede the learning of the theories of relational structure and sets. The concepts of relational structure and sets are both fundamental to quantitive thinking, and a generous amount of time is allotted to them in modern mathematics teaching.

The principles of the theory of relations and the classification theory in logic are also a great help. We realise now that, contrary to Greek logic, the relations concept precedes the classification concept. To form a class there first has to be a relationship between the members (elements) of that class. The classification theory, like the theory of relations, plays a role in all human thought processes, both quantitively and qualitively speaking. In mathematics, since Georg Cantor, people have been using the term "sets" more and more. A great deal of attention is therefore paid to them in modern mathematics teaching (Papy, Dieudonné) (38).

The propositions put forward here have been formulated and expanded in a teaching methods project which was promoted by the Television Academy. This "elementa-project" as it was called in Dutch, could be used in setting up a multi-media course for teachers or establishing a model multi-media school.

As far as reading and writing is concerned, the American Sesame Street project can certainly be used, together with the excellent German adaptations and variations. At the same time the conclusions of the Council of Europe working group for reading and writing teaching methods should be taken into account especially as regards the unit/credit system (39). In arithmetic there is a superfluity of teaching material from which it is difficult to choose. For subjects like history and geography a considerable amount has already been done by television for schools in various countries.

But apart from the institutions already mentioned we should also take into consideration the extensive experience of educational advisory centres, school psychology services, university research institutes, correspondence course institutes (40) and last but not least the important European educational publishers which have marvellous material. We have in mind for example Hachette, Bordas, Klett, Langenscheidt, Wolters, Noordhoff, Meulenhoff, Longmans, Enos (Madrid) and many, many others.

Of course the greatest difficulty is in the procedure to be followed. Even if we were to restrict ourselves to the multi-media school, then the Council of Europe would have to inaugurate a

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committee which would fix the terms of reference of the project. Later the committee would have to make a recommendation for the establishment of an international working group, which would have to set up a plan of action for the project.

The plan of action would have to be presented to all the various Ministries of Education, who would have to guarantee that a version of the programme for radio and TV made for their country would be broadcast for three years (41). It need not now be specified whether it would be broadcast via radio or television for schools or if it would be solely shown to teachers. Obviously a combination of both is possible (42).

What is multi-media first education?

If we think of the school of the future, then we generally imagine an institute which liberally exploits the many possibilities of combined teaching. We may however assume that the first school will use fewer media in this respect than the secondary school or tertiary institutions.

For instance the following activities may be considered:

a. aural teaching (in classes or individually)

b. working independently (possibly with programmed orders through teaching machines, programmed textbooks, computer controlled teaching etc)

c. language laboratory

d. laboratory

e. experimental garden

f. radio

g. television, video recordings, films, etc

h. written work

i. school walks and school trips

j. sociological plays, sensitivity training, school courts etc.

This by no means exhausts the number of possibilities. The variety is enough to attract attention. If we succeed in publicising this school via radio and television and supplying literature to encourage existing schools to reconstruct along these lines, then it has undoubtedly been a valuable exercise.

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But it is not solely the variety of media that is at stake, but first and foremost the content of the teaching. It cannot be repeated often enough that the substance of the teaching must not be sacrificed to the formal aspects. It is a dangerous illusion to think that employing new teaching materials in itself guarantees better teaching. Many American producers of technological hardware saw their attempts fail because they had not paid enough attention, if any, to the software. That is about as foolish as a publisher who only went in for dummies instead of real books. Conversely, there have been numerous educationists who have obtained astonishing results practically without any teaching materials. More important than the vision of multi media teaching, therefore, is the plain down-to-earth itemising of the teaching package.

Programming of teaching material

It is encouraging that the results of research into teaching methods in widely spread research institutes largely tally as far as the arrangement and sequence of the lesson material is concerned (43). Both in arithmetic and in reading and writing a number of elementary abstractions prove to be indispensable before the child learns to use figures and language at a higher level (44). These abstractions are identical in all children (awareness of identity, sets, generalisation) and develop in each child in the same sequence. Through this very important realisation, we can distinguish three aspects of the teaching process which can be individually dealt with.

We can explain this simply by comparing the process with the digestion. Digestion concerns a physical process, not a mental one. Everyone digests food more or less in the same way. The dietician's task is to prepare the food in such a way as to make it as nutricious and easily digestible as possible. However, it is also important for the meals to look appetising so that the eater is more inclined to eat them. That is the job of the cook. Lastly, (chronologically of course this comes first), we have the provisions supplier (baker, butcher, grocer). Yet we know that the food has already undergone quite a bit of processing before it gets into the shops.

If we then turn to food for the mind as opposed to food for the body we find:

a. the educationist, who supplies the mental food to which he has already done a great deal within his specialisation;

b. the teacher (dietician) who indicates all the steps in the learning process;

c. the teacher (cook) who makes the lesson material as attractive as possible.

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In practice (a), (b) and (c) overlap, with unfortunate consequences. This is especially important with regard to reading and writing, where the linguist often tries to force his highly abstract first principles on the unschooled brain of a child. The unit/credit system, which has been formulated under the auspices of the Council of Europe, is clearly an exception to this (45).

Conclusion

Considering these experiences which have just been described it must be possible to set up a programme for first education in Europe which would have the blessing of the majority of child psychologists and didacticians. To follow this up, or even to precede it, a course on the flexible school can be designed which can be used by all educational experts within the jurisdiction of the Council of Europe.

IV. Expansion of the basis

The middle school (12-16 age range)

After the first school comes the middle school (Gesamtschule), combining general and technical teaching (46).

There can be no doubt about it that our secondary schools are moving in this direction. A multi-media project ought to take this development into account. It appears, however, that technical subjects are the most difficult to teach via the media of radio and television, though television and radio can contribute to retraining, as was found in a Polish pilot project (47).

We will probably have to concentrate on the theoretical subjects without losing sight of their relationship to technical skills. Opinions differ as to which form of secondary education should be given priority. The Telekolleg programme would appear to be a good basis for large groups whose education terminated when they left primary school, or who have only received a limited secondary education.

A concrete proposal for a more elaborate secondary project

However, there exists a clear need for secondary education which is more advanced and is geared to preparing students for tertiary education.

The Television Academy has already been trying to work out a plan for some years, based on the following principles:

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1. a plan for extending the educational basis must be seen in the context of permanent education;

2. a plan for extending the educational basis must not proceed from traditional categories;

3. a plan for extending the educational basis must incorporate elements of play.

Volumes have been written lately about permanent education. We will confine ourselves to the remark that every plan for adult education has to be seen as part of permanent education. Therefore it is impossible to set up a plan for extending the educational basis without placing it in the frame of reference of permanent education.

What does this mean in fact? The aim of permanent education is to educate people to live in a continually changing social, cultural and political environment. Every permanent education programme has therefore to take into account the revolutions which are taking place in our age:

the methodology revolution (thinking in new symbols)

the scientific revolution

the technological revolution

the socio-political revolution and

the cultural-religious revolution.

These five revolutions can be discussed in terms of projects under five headings:

learning to think in new symbols

bringing natural science down to first principles

the technological revolution

society on the move

a new world image.

A basic extension project

By comparing different programmes we arrived at a plan for a course which it would be possible to arrange in Europe, as the first step towards a common education.

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Project: learning to think in new symbols

We have in mind the following three television lessons:

1. rational symbols: an introduction to modern logic;
2. irrational symbols: an introduction to abstract art;
3. modern grammar: the principles of generative grammar applied to the mother tongue,

and the following three radio lessons:

1. introduction to modern music;
2. introduction to modern drama;
3. introduction to modern poetry,

with the following "supports"

1. six lessons with three multiple choice exercises and key;
2. six documentation folders (24 pages in total);
3. one record of modern music with explanatory text;
   one record of modern poetry with explanatory text;
4. ten colour plates of modern art.

In addition there are conferences and performances to organise in conjunction with the television and radio lessons.

Project: first principles of science

For this project there are three television lessons:

1. models in inorganic nature: from the model of an atom to the model of the universe;
2. models in organic nature: from DNA model to a cell;
3. the theory of sets in new mathematics,

and the following three radio lessons:

1. discussion on space travel;
2. discussion on life in the universe;
3. the pace of science.

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In addition, visits may be made to a planetarium, observatory, radio telescope or meteorological institute.

As far as written material is concerned see: "Learning to think in new symbols".

Project: technological progress

The following two television lessons:

1. the computer in our society;
2. the age of space travel.

The following two radio lessons:

1. the age of communication;
2. technological progress.

Visits may be made to computer centres. For written material see: "Learning to think in new symbols".

Project: society on the move

The following two television lessons:

1. permanent education: opportunity for all ages to learn;
2. world peace as a task.

The following two radio lessons:

1. discussion on freedom in upbringing;
2. discussion on rich and poor countries.

For written material see: "Learning to think in new symbols".

Project: a new world image

The following two television lessons:

1. synthetic thinking;
2. dynamic thinking.

The following two radio lessons:

1. discussion on medical ethics;
2. discussion on world religions.

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For written material see: "Learning to think in new symbols".

All these projects can be supported in adult education institutes.

If we were to succeed in setting up an international multi-media course of this kind it would be an excellent basis for developing a complete course of secondary education. We must not forget it was the Telekolleg which started it all.

V. A multi-media university for undergraduate and post-graduate study

The open university

There is no doubt about it that at the tertiary level there is a need for a multi-media school for the whole of Europe. It is equally certain that the open university is a first step in this direction. The arguments for a national open university are of course different from those for a supranational one although they do overlap to a large extent. For instance the idea of giving people a second chance is a concept which all the member states of the Council of Europe subscribe to. There is no point in repeating here all the arguments which have already been admirably presented in the famous White Paper produced by Jenny Lee and Harold Wilson and which since then have been reiterated in many different forms. With the increasing restrictions on the number of students admitted to the universities (numerus clauses and numerus fixus) the trend towards more democratic education (social mobility) and scientific and technological innovations (acceleration) a national open university scarcely needs further urging.

Moreover, the same applies to this as to primary and secondary education: modern educational technology ought to infiltrate the traditional educational system, ie our established universities ought to take much more advantage of combined teaching. It is highly conceivable that gradually the closed university and the open university will come together because the structure of both will have a multi-media character. The opening of lecture rooms and laboratories during the evening, at weekends and in the vacations (as has been done in the Soviet Union for a long time) more than anything else will give these closed institutions a much more open aspect and make them available for teaching larger groups of students.

Permanent education at university level

Permanent education means that no single form of education will be final. No one these days has finished his studies or is too old to learn. We agree with F A Heyn, the Dutch physicist and educationist with whom we worked for more than 10 years, when he says: "It has been the custom up to now at some point to bid goodbye to school, primary school, secondary school, university or whatever it

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was and to use the knowledge one had acquired to earn a living. The period of learning had finished and people went on to use their knowledge, to practice their profession. Leaving school for many was a pleasant change. They were quite aware that knowledge did not stand still and that there were some things which had still to be learned, but on the whole the knowledge acquired was quite sufficient for one person's lifetime. Someone who sat his secondary school-leaving examination in 1910 could still get along reasonably well in 1935. An engineer who graduated in 1915 could still take an active part in technical developments in 1935. A teacher in fact needed to learn very little more during his whole career."

We will discuss in this respect a number of necessary changes in the educational field.

1. In the first place the whole concept of having "finished" one's studies must disappear. A person who has finished studying in the old sense, at whatever level it is, no longer exists. People cannot say goodbye to school like they used to. The period of study and learning has become lifelong.

We should not really use the term adult education because this suggests a special training, whereas it must become a matter of course that people continue learning as adults. They will never have finished.

2. Secondly, the syllabuses of all educational institutions will have to be scrutinised very thoroughly and everything which is not lasting will have to be discarded. In other words the life span of syllabuses must be studied. How long does a syllabus last, how long can it be used? For example it is completely useless teaching students about chemical engineering processes in industry at the moment, because we are pretty well certain that by the time the students themselves get into the factory the processes will be totally obsolete. Consideration will mainly have to be given to subjects with a long life span, for example for science students and engineers this means mathematics, physics, parts of chemistry etc. But even these subjects should be taught using the most modern methods, if they are really to last long enough. It is shocking how in these days of rapidly increasing knowledge, dynamic knowledge, school curricula remain virtually unchanged. While school and university curricula ought to be continually in a state of flux following closely on the heels of the development of our knowledge, in fact obsolete material is often taught and people only come into contact with modern developments after they have left school. This does not just apply to science subjects but to practically all subjects. This kind of backwardness in educational institutions is unacceptable.

3. In the third place, the average performance which the students reach will have to be raised. It is not right that students should leave school or university either before they are adequately trained and before they have reached the highest level that they are capable of reaching. For the most gifted, institutes for advanced studies and specialised courses are necessary, which can be attended after leaving university or "hogeschool". One will therefore have to accept an extension of the study period, which is of course unavoidable given the increasingly growing bounds of our knowledge.

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On the other hand an attempt will have to be made to shorten university courses by relieving higher education institutes as much as possible of all material that can be taught at a lower level and transferring it to the schools. This must be done on a much greater scale than has been done up to now. Often subjects are taught at university and "hogeschool" that could be learnt by much younger students. This is inefficient. Young students can often learn much more difficult things than one thinks. Learning is to a large extent a matter of getting used to things and young people do this quickly. In order to shorten the length of courses, specialisation will have to be transferred as much as possible to industry where the induction period will become longer. Things are becoming so specialised these days anyway that educational institutions will never again be able to produce people who are "ready for work", as it were.

4. Fourthly, every consideration must be given to an efficient transference of knowledge. Everyone agrees on this issue. In particular I would however like to point out the enormous importance of good textbooks. The writing of school books is all too frequently left to amateurs, to people who make a hobby of it or who want to earn a little extra, while teachers do their best to choose from what is available in accordance with their own taste and judgement. This really is an impossible situation. From the enormous sums of money which are spent on education a small amount could be laid aside for providing good books. Even more untenable is the position in the universities where often books do not command anywhere near the respect they deserve and generally students are not introduced to the bibliography of their subject.

It would be a considerable improvement if institutions were to radically dissociate themselves from the chronological educational method, whereby a subject and the history of the subject are mixed up together and the student has to go through all the stages in the development of the subject, while its present stage is often never reached at all.

5. Finally, the fifth and last point, which is really the most important. An organisation will have to be established which can provide for the educational needs of those who are already working.

Why a European open-university?

The requirements set out above can much better be met at an international level, which would make it possible to obtain the co-operation of large industrial concerns and international organisations.

Radio and television, especially, can fulfil an identifying function (48). It is totally wrong to think that video cassettes, correspondence courses or textbooks can ever completely take over this role. In teaching method theory, teaching material is divided into a static part and a dynamic part, which is continually undergoing change. It is precisely this change which should be identified by the open democratic media.

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If we regard radio and television as the look-out posts of the acceleration of knowledge, we may ask ourselves how we are to come by this information in the first place. It would be advisable to create a European programming institute which would serve as the source of European broadcasts for closed as well as open universities (49). A programming institute of this kind could well be placed in the Benelux, perhaps attached to the multi media university of Manternach (Luxembourg) (50).

There are three processes in our society, which present us with a challenge:

- internationalisation

  acceleration

  permanent education

If we look upon television as the most powerful weapon we have with which to face this challenge it will have to achieve three things:

- the broadcasting of international programmes

- the identification of new developments

  the broadcasting of series (continued over a period).

What we are concerned with is finding a modus operandi for making this threefold task a living reality for university education.

Problems of co-ordination

Nowhere is the problem of co-ordination more difficult than in university teaching. In the medical and legal sectors in particular, there is a decided inclination towards national (in America even regional) isolationism. A lot has yet to happen before qualifications become valid throughout the whole of Europe although in the end this will be inevitable.

There is a big gap between all and nothing, however. Because of the numerus fixus many more students are following correspondence courses or have private coaches. At some universities there are more students studying law and economy externally than in the university, although they have ultimately to do the required examinations.

Were we to take the problem of permanent education as a starting point it would certainly be possible to organise post-graduate education at an international level. With this in mind a committee could be set up by the Council of Europe.

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As far as the purely university courses are concerned, one could begin by setting up one facutly up to first degree level and then see how far it would be possible to get this degree from the open university internationally recognised.

It would be folly to start from scratch with this kind of institute, especially when so much marvellous pioneering work has already been done in the field. Of course the first thing that springs to mind is the British achievement which is considered exemplary over the entire world. There are however courses in other countries (ORTF (Office de Radio Diffusion/Télévision Française), ZDF (Zweites Deutsches Fernsehen), Television Academy) which could be integrated into such a plan. In the Netherlands, where foreign textbooks (in French, English and German) have been in use for many years, courses on radio and television in these foreign languages with Dutch notes are being considered.

Lastly, mention may again be made of the initiative taken by Luxembourg to set up an international multi media campus university, which will also make use of existing material (comparable to the campus university in California). This kind of institute could also be very useful as experimental terrain for a European experiment, the more so since the distance between Manternach and Strasbourg is so small. It is incumbent on the Council of Europe to appoint a committee to study the possibilities of setting up one European faculty (up to first degree level) and a post graduate one year course (for example for medicine). If the emphasis is laid on internationalisation, acceleration and continuity, national resistance will be overcome. The fact that the experiences of the Open University will be drawn on extensively in these committees speaks for itself.

VI. Other projects

A school for parents

We have dealt fully with the first four projects because in these cases co-ordination is an obvious necessity. As far as (e) (school for parents) and (f) (a multi-media professional course) are concerned the matter is more complicated and the co-ordination will have to be more of an ad hoc nature. Accordingly, we think that the time for European co-ordination is not yet ripe, which is why we are taking these projects together and dealing with them briefly. In an age of generation gaps, schools for parents are no luxury. The French were the first into the fray. Curiously enough it seems that one of the strongest incentives for following these courses is to help children with their homework (51). This is why subjects like new mathematics and social orientation are so popular. Since the school curricula still differ a lot, co ordination in a supranational sense is not immediately relevant. As school curricula themselves become more and more co-ordinated this project will have more chance of becoming co-ordinated too.

The present writer at one time made a plan for textbooks for parents in which the subject-matter being learnt by children attending school (and students) was made accessible to people of the previous generation (52). No publisher has yet ventured to accept them, however. It could be the business of the Council of Europe to encourage this kind of activity on a larger scale since international editions could make this kind of venture profitable. An attempt could also be made at international level for a more rewarding dialogue between the generations (53).

Vocational guidance

The term vocational guidance is generally taken to be synonymous with professional guidance. With reference to the report of the Council of Europe "New trends in Adult Education" we draw our understanding of the term vocational guidance from the word vocational which implies destination, not just profession. Perhaps we can explain it as follows:

professional guidance tries to put the right man/woman in the right job, vocational guidance also tries to find the right job for the right man/woman.

This is consistent with the aim of welfare policy, which is to provide each person with optimum satisfaction and the minimum of frustration in the community.

To inaugurate research into the needs for vocational guidance it is best to start with a sociological model, eg Merton's paradigm. Function and dysfunction are the characteristics of this paradigm. The first question we should ask at this point is: what groups experience functional difficulties in the professional sphere? Much can be done by means of a straightforward questionnaire. The following groups emerged from surveys conducted on lines in different countries:

a. workers in modernised companies

b. administrative staff in computerised companies

c. farmers

d. housewives looking for jobs

e. teachers

f. technicians

g. doctors

This list is by no means exhaustive, but certainly covers a large area of social dysfunction.

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It is worth noting that pure specialism is becoming less and less common. A specialist needed to be someone who knew "more and more of less and less"; these days a specialist is someone who is standing at the crossroads. This means that teamwork and transfer of knowledge are necessary. This also brings up a special problem of adult education.

We have not considered the specially gifted, since as a group they experience difficulties in every society, because society nearly always accepts the average as the normal. The problems of this group are not specially bound up with this age. It is even possible at the moment that, in the services sector particularly, there are more opportunities for the genius or the specially gifted than in the past.

I have elucidated these groups more fully in a previous contribution for the Council of Europe. It is certainly possible to arrive at greater co-ordination, but this would have to be investigated per group. In addition a list would have to be made of what is already going on in this field via radio and television, and material from the USA, Japan and the Soviet Union can most certainly be used.

On the basis of lengthy experience with similar projects the present writer emphatically advises against spending too much time on surveys. Research into needs which have no fixed dimensions generally produces discouraging results. It is much better to reverse the process and show a sample of the product, ie set up a pilot project.

One could imagine for example three television companies agreeing to arrange a course jointly for agricultural workers who have the same problems throughout Europe. Material which already exists could be used (54). The best idea would be to work with international, ie neutral tapes recorded in each of the countries where the pilot project is to be shown.

Insofar as we can see this problem in its entirety, it would seem fairly irrelevant what project one starts with. It is more a question of getting the viewers at home used to the idea that educational television could also be part of the Eurovision network. This is another field in which the Council of Europe might start getting a committee together.

Conclusion

This report has been written with interruptions owing to ill health. I will not venture to say whether it comes up to the expectations of those who commissioned it.

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The idea of co-ordinating existing projects has been abandoned because the practical difficulties involved are almost insurmountable. We think it much more feasible to integrate important projects in a totally new set up.

The Council of Europe will have to take the initiative. The first step might be the setting up of a working group to instigate European multi-media projects.

The working group could co-opt a number of sub-committees which would each be responsible for one large project. Television companies with specific experience (Open University, Telekolleg, ORTF, etc) could make their experience available. Goodwill and experience could be obtained by beginning each project with a pilot project of no more than 20 broadcasts. If the Council is prepared to think and work along these lines then the present writer will be only too glad in specific instances to give assistance to the best of his ability in getting the project off the ground.

Hilversum,
1 October 1974

Notes

(1) Even where their work is not specifically referred to their ideas have been seriously taken into account.

(2) Besides meetings at foreign congresses and conferences (some of which have been promoted by the Council of Europe) I am thinking in particular here of more regular contact with our Belgian and German colleagues.

(3) We think that various difficulties which were quite rightly anticipated by André Deprad will prove to be less unsurmountable if we start by thinking about both educational principles and teaching techniques.

(4) This is why it is preferable to start on a limited number of pilot projects in which the two aspects have been organically united.

(5) Only in a very few cases has a success been made of co-operating on a give and take basis. The majority of co-productions are those made with the foreign markets in mind. From experience with the Television Academy we know that actual co-production as we have achieved on a few occasions with Belgische Radio en Televisie (BRT) - is only possible if very clear arrangements have been made beforehand.

Nor may the exchange of educational software be equated with actual co operation. This latter aim is the central feature of our research. This does not mean to say that exchange may be ignored altogether. Co-operation with the Comité Intergouvernemental pour les Migrations Européennes (CIME) is urgently needed.

(6) The acceleration factor is both an ally and an enemy. It forces us towards co-operation but at the same time results in long preparations being overtaken by new information. We think this is not always sufficiently realised by the planners of multi-media projects.

(7) "Systems approach" teaches us that the elimination of bottlenecks is often necessary before we can go any further. One ought still to give priority to the attainable above the ideal. The Latin warning still holds good: "Senatu deliberante periit Saguntum" (Saguntum fell while the Senate debated).

(8) We are dealing here with decisions which are to a very large extent interdependent. Because of this it is not really possible to evaluate them statistically. The die has to be cast.

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(9) Deprad rightly points to the psychological reservations which scientists have with regard to exchanging information. An approach must be found which does not meet with opposition beforehand. This can best be achieved in a lighthearted project atmosphere.

(10) Here too we agree with Deprad's suggestion of "créer un état d'esprit nouveau".

We think the only possibility of achieving results quickly is through an open experiment which compels no participant to make a decision and which rises above existing arguments and conflicts.

(11) It is no use turning a blind eye to existing bottlenecks in the hope they will solve themselves in due course. We must try to give the implementers of a project a wide margin with regard to its implementation. Therefore first of all fundamental agreement should be reached on a number of points. Gilbert's research ("A European Information System for non-book materials") contains very substantial information about the use of material. For even in new projects existing software in the widest sense of the word will be used. The co-operation with EUDISED and UNESCO which he advocated ought to be pursued without more ado.

(12) It is to be expected that a new generation of managers will be much more flexible on this point. They will have learned how to optimalise decisions and will know when to draw the line. Too many of our current decision-makers are all talk and have too many fixed ideas. Here too there is a job for the Council of Europe.

(13) It is unfortunately a fact of life that pressure groups these days appear to be indispensable if one wants to achieve certain ends. We should not fight shy of forming pressure groups if our goals are at stake.

(14) In addition, with regard to formulating procedure the help of an experienced manager (decision-maker) is of great importance.

(15) Of course this is a disputable statement, partly based on a rejection by selection and partly on a rejection by elimination. In the case of rejection by selection, one chooses from a number of possible alternatives, in the case of rejection by elimination one excludes all other possibilities, including the unknown. A man who chooses his wife from two women says no to one women whom he knows, but also to all other women whom he doesn't know. The same applies to these suggestions. Many possibilities have been considered and to some of them we have said yes and to others no. But we have also eliminated all the possibilities, that we don't know. It is therefore conceivable that someone else will come up with better suggestions which we have not considered at all.

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(16) Unity in disparity has always been a European cultural ideal.

(17) J A van Ek's work is specially instructive on this topic: "Analysis of the problem involved in defining, in operational terms, a basic competence level (or threshold level) in foreign language learning by adults" (CCC/EES (72) 17).

(18) This has already been partly achieved in Switzerland in that students who move from one canton to another can often go on using the same textbook (in German, French or Italian).

(19) Experience which has been gained in this field proves to be valid for other sectors of education.

(20) It is really remarkable that in a technological age people have been so slow to consider integrating technical subjects into the syllabus.

(21) It is disappointing that our programmers take so little notice of the substance of the information they provide. Yet it is the very obsolescence of the subject matter which makes the programmes obsolete too. Kampanejec, the Russian nuclear physicist, shows that the problem is a universal one: "Up to now, however, pupils at school study the hopelessly outdated Bohr theory, with its inexplicable paths which in reality do not exist. Millions of young people every year learn useless things because teachers cannot explain present day theories to them!" ("Cto takoe kvantovaja mehanica", published by Nauka, Moscow 1964 page 7 .

(22) This course has meanwhile been terminated since its purpose had been served.

(23) The NUFFIC is the Netherlands Universities Foundation for International Co-operation.

Organisations of this kind exist in many countries. The ICED (International Council for Educational Development) is also very important for this purpose. Address:
522 Fifth Avenue, New York, N.Y. 10036
From early in 1973 - 680 Fifth Avenue, New York, N.Y. 10019
Telephone: (212) 867-9450
Cable: INCEDEV

PO Box 217, Essex, Connecticut 06426
Telephone: (203) 767 0155
Cable: INCEDEX

The experience and activities of INCEDEX should certainly be taken into account in co ordinating European university education. The following statement is worthy of endorsement: "After years of rapid expansion many university based international studies

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programmes - student and faculty exchange, area studies centres, research and technical assistance - are today facing changing needs along with increasing competition for funding and for the interest of students and faculty. In the current search for ways to strengthen and transform such programmes, ICED hopes to bring fresh perspectives to the review of priorities in universities both in the United States and elsewhere, and to promote greater international collaboration among universities and research institutues.

ICED has contributed a major report on international studies to the Carnegie Commission on Higher Education (Bridges to understanding: International Programs of American Colleges and Universities by Irwin T Sanders and Jennifer C Ward, McGraw Hill, 1970). Maurice Harari, while ICED director of international studies, wrote Global Dimensions in US Education: The University (1972). It was one of four papers prepared for a co-operative venture of the International Studies Association, the American Political Science Association, and the Center for War/Peace Studies.

After joining ICED, Philip Coombs completed, with co-author Jacques Hallak, an international study of educational costs, prepared for the International Institute for Educational Planning. Managing Educational Costs was published by the Oxford University Press in the Spring of 1972."

ICED's activities are directed from its headquarters office in New York City by James A Perkins, chairman of the board and chief executive officer. Philip H Coombs is vice-chairman with offices in Essex, Connecticut. ICED's European representative and trustee Max Kohnstamm, president of the European Community Institute for University Studies maintains an office in Brussels. ICED intends to alternate the site of the annual meeting of the international board of trustees between the United States and locations overseas.

(24) A complete review of our programmes according to the modulus principle is necessary for this.

(25) Putting university education on a par with research teaching can lead to misunderstandings, because only some graduates are involved in research. Accordingly, there is an increasing tendency in many countries to introduce masters degrees (licenciés, doctorandi, etc) being a four year tertiary education course, followed by a doctorate (maitres d'étude etc), for those who wish to do research.

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(26) The results of an investigation into the social implications of the Open University are interesting. The participation of the working classes which Wilson and Lee expected did not occur. But there was a very large percentage of people whose parents were working class, so that there is definitely a question of social mobility.

(27) It is useful to impress upon future students that they will have to continue studying all their lives.

(28) The idea "to study for a living" is formulated in Marshal MacLuhan's "Understanding Media", MacGraw-Hill, 1964.

(29) It is with unlearning particularly that the greatest resistance is encountered. Breaking loose from cherished systems of thinking requires flexibility and eagerness to learn.

(30) On certain occasions about 500 doctors come together to attend courses there, specialists discussing topics with a frankness that is almost unthinkable in Europe.

(31) The results of this project were very encouraging, especially with regard to foreign workers. The directors of the mine were even afraid that manpower would be lost through this form of adult education.

(32) In our opinion it deserves greater publicity.

(33) The story is told on several occasions by Gesell, the American educationist.

(34) Anna Freud in particular has placed great emphasis on this.

(35) One big danger is that if simplified spelling is introduced, the rules acquired in early infancy can no longer be obliterated from people's minds.

(36) Increasing the compulsory school age to 18 - as many educational sociologists propose - has its disadvantages. It would be better initially to use the term "guaranteed learning right". There is already so much that is compulsory in present day society.

(37) But the educational implications of this are great. It requires an enormous flexibility on the part of the teachers. Research should be a continuing source of information for schools (and for radio and television) in this respect.

(38) Working with sets often leads to difficulties, because one often all of a sudden has to work with things such as elements instead of numbers.

(39) It would be good to see more mutual co-ordination between the many Council of Europe committees.

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(40) The publications of Eliasson, the Swedish pedagogue, on this topic are extremely interesting.

(41) There is a lot of useful information in "Die pädagogische Chance der technischen Medien" by Heinrich Berresheim and Herbert Hoersch, Patmos Verlag, Düsseldorf 1964, which deals with "Film, Funk und Fernsehen im Dienste der Schule, Erwachsenenbildung und Seelsorge".

(42) Compare also "Fernsehen in der Lehrerbildung", edited by Ernst Meyer, Manz Verlag, München 1966.

(43) See "Educational research in Britain", edited by H J Butcher and H B Pont (University of London Press, 1968) which has very detailed literature references.

(44) The teaching programme sponsored by the Television Academy "Elementa" (for the first school) has used these ideas.

(45) A somewhat less scientifically formulated explanation of this project for teachers would be highly recommendable. The research of Dr. van Ek makes an especially valuable contribution.

(46) In order to achieve a multi-media supranational project for secondary education unanimity on comprehensive schools is certainly desirable.

(47) An important point was that companies made it possible for workers to attend courses in the late afternoon by adopting different working hours.

(48) Jean Cazeneuve's work "Les pouvoirs de la télévision", Gallimard 1970, is very illuminating.

(49) This is another job for the Council of Europe.

(50) The organisers of this university are prepared to co-operate in every conceivable way with the CCC of the Council of Europe.

(51) For this reason two thousand miners followed courses in verbal expression, mathematics and electronics. An enormous success for Bertrand Schwartz!

(52) We have in mind booklets of about 32 pages.

(53) One ought to realise that because of the second world war, technological progress and changed ideas of the norm, the gulf between the generations has in many cases been widened. In addition, some technical generations (for example computer programmers) only last a few years.

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(54) Courses have been run in France, West Germany, the Netherlands and Britain. The French course was a great success because of the rapid follow ups to the broadcasts which were geared to discussion groups in Brittany and other places.

The Television Academy, in a small country like the Netherlands, made up no less than a thousand discussion groups (of 15 to 30 people each) composed of mainly young farmers. It is interesting that the problems in all the four countries were different. It would be extremely instructive for all the farmers within the EEC if an overall course were compiled.